

Turkish Adaptation of the Social Media Disorder Scale in Adolescents

Mustafa SAVCI¹, Mustafa ERCENGİZ², Ferda AYSAN³

¹Psychological Counseling and Guidance Department, Firat University, Elazığ, Turkey

²Psychological Counseling and Guidance Department, Ağrı İbrahim Çeçen University, Ağrı, Turkey

³Psychological Counseling and Guidance Department, Dokuz Eylül University, İzmir, Turkey

ABSTRACT

Introduction: The aim of this study is to determine the reliability and validity of the Turkish form of Social Media Disorder Scale (SMDS) in adolescents which is developed using the diagnostic criteria of DSM-V Internet Gaming Disorder.

Methods: Validity and reliability analysis of SMDS was conducted through four different sample of 553 adolescents who use social media every day for the past 1 year, and have at least one social media account.

Results: The construct validity of SMDS was examined with Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA). After EFA, it was seen that the items of SMDS grouped under 1 factor which eigenvalue is above 1. This one factored structure explains about half of the total variance. One factored structure obtained from EFA was tested with CFA in two different samples. After CFA, it was shown that one factored SMDS model has good cohesion values in each two samples. Concurrent validity of the SMDS have been examined period of the use of social media, social media account number, self-discipline, impulsivity, positive affect, negative affect and social connectedness. At the result of

the analysis, it was found that SMDS is positive correlated with duration of the use of social media, social media account number, negative emotions and impulsivity; negative correlated with self-discipline, social connectedness, and positive emotions. The reliability of SMDS was examined with test-retest method and Cronbach's α internal consistency reliability coefficient in three different samples. Analysis showed that Cronbach's α internal consistency reliability coefficients and test-retest reliability coefficient were found to be adequate. SMDS item analysis was carried out in three different samples. It was found that corrected item-total correlation coefficients of the SMDS items are in the range of accepted values in the literature t-test results for 27% sub-super group item comparisons are significant for all items in each three samples.

Conclusion: According to the results of EFA, CFA, criterion-related validity, reliability analysis, and item analysis of SMDS, the Turkish form of SMDS is a valid and reliable instrument.

Keywords: Sosyal media disorder, social media addiction, adolescent, exploratory factor analysis, confirmatory factor analysis

Cite this article as: Savcı M, Ercengiz M, Aysan F. Turkish Adaptation of the Social Media Disorder Scale in Adolescents. Arch Neuropsychiatry 2018;55:248-255. https://doi.org/10.5152/npa.2017.19285

INTRODUCTION

Almost half of the world's population use the Internet. This rate is equivalent to more than half of the total population in Turkey (61.2%). Increasing use of the internet and widespread use of mobile applications have also made social media more popular. In fact, by the year 2017, 2.7 billion people worldwide are actively using social media. Similarly, the number of active social media users as of 2017 in Turkey has exceeded half of the population. Daily use of social media in Turkey, "3:01 hours" as has been reported (1, 2). In addition, according to Google Play (3), the first list of the most popular free apps is social media apps. These social media applications (Messenger, WhatsApp Messenger, Facebook, Instagram and Twitter) have been downloaded approximately 4 billion times in total. This shows that the internet and social media are at least as demanding as basic needs.

The Internet facilitates individual life through functions such as communicating, acquiring information and sharing information (4). However, the internet is addictive when it cannot be controlled and is overused (5). Griffiths and Szabo (6) emphasize that activities on the Internet are also a source of addiction. Indeed, Ryan, Chester, Reece, and

Xenos (7) point out that social media is addictive to some users. Out-of-control and excessive social media use is associated with addiction in research (6, 8-11). For this reason, social media disorder / addiction is conceptualized as a behavioral addiction in the literature.

Social disorder/addiction is not defined as a disorder in DSM-V. However, social media addiction is considered as a behavioral addiction in the literature (6, 9, 11). Echeburúa and de Corral (12) emphasize that social-addicted individuals show similar symptoms to other behavioral addictions and symptoms of individuals with substance addiction. Similarly, Kuss and Griffiths (9) and Griffiths (8) point out that social media addiction meets the diagnostic criteria of behavioral addiction.

Griffiths (8) emphasizes that social media addiction meets the diagnostic criteria of attention-getting, mood change, tolerance, withdrawal symptoms, conflict and relapse, and therefore social media addiction can be regarded as a behavioral addiction. According to Griffiths (8), behavioral, cognitive and emotional preoccupation is increasing in social addicted individuals (attention getting), Excessive use of social media

causes emotional changes (emotional change). The use of social media is increasing over time (tolerance). In the event of stopping or reducing the use of social media, physical and emotional symptoms occur (withdrawal symptoms). Due to the use of social media, there are interpersonal and mental problems (conflict). The Addiction symptoms is repeated (relapse). Similarly van den Eijnden et al. (11) recognizes nine dimensions of social media addiction: Preoccupation, tolerance, withdrawal, persistence, displacement, problem, deception, escape and conflict. According to Van den Eijnden et al. (11), not to think of anything other than to think about the moment in which to use social media indicate to preoccupation, not satisfy the need to spend more time in social media indicate to tolerance, feel bad when not using social media indicate to withdrawal, failures of attempts to use social media less often indicate to persistence, neglecting activities because of the desire to use social media indicate to displacement, the use of social media causes interpersonal problems indicate to problem, misleading statements about the time spent in social media indicate to deception, use social media as an escape method from negative emotions indicate to escape and the use of social media causes debate with family members indicate to conflict.

Social media addiction is defined as overuse of social media, unsatisfying desire to use over time, neglecting activities at home, school or other areas due to excessive use, experiencing physical and emotional problems if the use of social media usage is stopped or reduced, use of social media to begin to harm social relationships and use of social media to escape from negative emotions (6, 8, 9, 11, 13–15).

Social media addiction, a new addiction, has attracted the attention of researchers in recent years. Social media addiction is also called social media disorder (11), excessive social media use (6, 15), problematic social media use (11, 16, 17) and compulsive social media use (18, 19). In addition, constructs such as Facebook addiction (20), mobile phone addiction (21), smart phone addiction (22) and Internet addiction (9) are considered as factors related to social media addiction. Social media addiction has been explored in a multidimensional way, even though it is a new field of research. Research on social media dependence in the literature has focused on examining social media usage patterns, motivations for using social media, personality traits of social media users, negative results of using social media, social media addiction potential and social media addiction (9). In researches, problematic use of social media was found to be associated with depression (23, 24), anxiety (24, 25), impulsivity (26, 27) narcissistic personality (28), loneliness (26, 29, 30), internet addiction (31), sleep quality (24, 32), well-being (33), self-esteem (28, 34), self-control (19) and academic performance (35).

Social media use is more common among adolescents. Adolescents use social media more often because they feel less authority and parental pressure in online environments (20). In addition, adolescents are more open to technological innovations and are prone to use new technologies. Social media is therefore used more intensely among adolescents (36). Valkenburg and Peter (37) emphasize that adolescents are more vulnerable to technological dependence than other age groups. In addition, Yen et al. (38) point out that emotional problems increase during adolescence and that adolescents use the internet as a means of coping with these problems. It can therefore be said that adolescents are more disadvantaged in the use of social media and exposure to the negative consequences of social media. Indeed, Turkey is used more intensively in the internet youth (39). For this reason, it can be said that virtual environments are a risk factor for adolescents (40). This allows research on technological addictions to be carried out more on adolescents.

Facebook addiction [(41) (university student), (42) (high school student)], aims of social media use [(43) (secondary school and high school

students)] social media use [(44) (university student)], fear of missing out [(45) (university student)], Facebook connection strategies [(46) (university student)] and Facebook jealousy [(47) (university student)] are studied in Turkey. In addition, there are measurement tools in these subjects. However, it did not find any scale that measures the social media addiction in Turkey. There are also a limited number of research related to social media in Turkey. This situation arises from the fact that the means of measurement related to social media are few and social media is a new field of research. Therefore, the Social Disorder Scale is expected to provide significant contributions to the social media research will be carried out in Turkey. Social media addiction has been studied extensively in a number of surveys in literature. These surveys have contributed significantly to efforts to intervene in social media addiction and to prevent social media addiction (9). More than half of Turkey's population is actively use social media (1), it is thought that the research about social media addiction is extremely critical. Turkey will be about social media addiction research, which revealed the addiction profile, is expected to contribute to the social media addiction will determine the risk factors and intervention and prevention work. Therefore, the aim of this study is to examine the validity and reliability of the Social Media Disorder Scale Turkish version, which was developed by van den Eijnden et al. (11) using DSM-V Internet gaming Disorder diagnostic criteria.

METHODS

Sample

The Turkish adaptation of the SMDS was carried out through four different samples. First of all 300 collected data are randomly divided into two. Confirmatory Factor Analysis (CFA) was performed on 150 adolescents (75 girls, 75 boys) and Exploratory Factor Analysis (EFA) was performed on 150 adolescents (77 girls, 73 boys). Subsequently, the criteria validity of the SMDS were carried out on 187 adolescents (87 girls, 100 boys). Test - retest reliability of SMDS was performed on 66 adolescents (36 girls, 30 boys). This research has been conducted on 553 adolescents (275 girls, 278 boys) who adolescents who have used social media for at least one year and have at least one social media account. Demographic information for the study group is presented in Table 1.

Measurement

In this study, Social Media Disorder Scale (SMDS), Brief Self-Control Scale (BSCS), Positive and Negative Affect Schedule (PANAS), Social Connectedness Scale (SCS) and Personal Information Form were used as data collection tools.

Social Media Disorder Scale (SMDS): SMDS, developed by van den Eijnden et al. (11), is consisting of 9 items and one dimension. SMDS is scored with a rating of two (yes-no). However, the SMDS has been adapted as 5 point Likert (1= Never, 5= Always) in terms of being able to give precise results. The SMDS was developed by using diagnostic criteria determined for Internet Gaming Disorder in DSM-V. Therefore, every item of the SMDS indicates a diagnostic criterion. The items of the SMDS and the relevant diagnostic criterion are presented in Table 2.

The 9-item and one-dimensional structure of the scale was tested in three different samples. As a result of the analysis, it is seen that the model has good fit indices. [χ^2 (27, n=724)=24,846, p=0,58, CFI=1,000, RMSEA=0,000 (90 %CI: 0,000–0,026), χ^2 (27, n=873)=62,852, p=0,001, CFI=0,997, RMSEA=0,041 (90 %CI: 0,028–0,055) and χ^2 (27, n=601)=54,129, p=0,002, CFI=0,989, RMSEA=0,041 (90 %CI: 0,025–0,057)]. The criterion-related validity of the SMDS was examined by the use of compulsive internet, social media addiction, depression, self-esteem, loneliness, attention deficit, impulsivity and frequency of daily social media use. As a result of the analysis, it was determined that the SMDS is related to these structures in the expected direction and level. For the reliability of the SMDS,

Table 1. Demographic information for the working group

Variable		EFA Sample		CFA Sample		Criterion Validity Sample		Test - retest Sample	
		N	%	N	%	N	%	N	%
Gender	Girl	75	50	77	51.3	87	46.5	36	53.79
	Boy	75	50	73	48.7	100	53.5	30	46.21
Class	9	118	78.7	129	86	153	81.8		
	10	6	4			10	5.3		
	11	24	16	21	14	24	12.8		
	12	2	1.3						
Use average daily social media	Less than 1 hour	110	73.3	101	67.3	100	53.5		
	1-3 hours	36	24	39	26	54	28.9		
	4-6 hours	4	2.7	6	4	29	15.5		
	7 hours and more			4	2.7	4	2.1		
Number of social media accounts	1	71	47.3	68	45.3	55	29.4		
	2	23	15.3	17	11.3	26	13.9		
	3	21	14	19	12.7	30	16		
	4	26	17.3	23	15.3	36	19.3		
	5	7	4.7	19	12.7	34	18.2		
	6	2	1.3	4	2.7	6	3.2		
Is there internet connection in the living place?	Yes	73	48.7	70	46.7	97	51.9		
	No	77	50.7	80	53.3	90	48.1		
Age	14-18 age range								
Total		150		150		187		66	

Cronbach's α internal consistency reliability coefficient was calculated in three different samples. In the analyzes, the coefficients were found to be acceptable (0,81, 0,76 and 0,82). The test-retest reliability coefficient of the SMDS was 0,50. These results from validity and reliability studies indicate that the SMDS is valid and reliable (11).

Brief Self-Control Scale (BSCS): BSCS, developed by Tangney, Baumeister ve Boone (48) and adapted to Turkish by Nebioglu et al. (49), is a 5-point

Likert type scale consisting of 9 items and two dimensions (impulsivity and self-discipline). As a result of the CFA, the model of BSCS was found to have acceptable fit values ($\chi^2/df=1,98$, $CF=0,98$, $GFI=0,99$ and $RMSEA=0,043$). The criterion-related validity of the BSCS was examined using the Tromso Social Intelligence Scale, the Emotions Management Skills Scale, and the Short Form of Barratt Impulsiveness Scale. As a result of the criterion-related validity, it was seen that the BSCS is related to these scales in the expected direction and level. The Cronbach's α internal

Table 2. The Items of the SMDS and the Relevant Diagnostic Criterion

Criterion	During the past year, have you ...
Preoccupation	...regularly found that you can't think of anything else but the moment that you will be able to use social media again?
Tolerance	...regularly felt dissatisfied because you wanted to spend more time on social media?
Withdrawal	...often felt bad when you could not use social media?
Persistence	...tried to spend less time on social media, but failed?
Displacement	...regularly neglected other activities (e.g. hobbies, sport) because you wanted to use social media?
Problem	...regularly had arguments with others because of your social media use?
Deception	...regularly lied to your parents or friends about the amount of time you spend on social media?
Escape	...often used social media to escape from negative feelings?
Conflict	...had serious conflict with your parents, brother(s) or sister(s) because of your social media use?

Table 3. Goodness of fit indices and acceptable limit

Indices	Acceptable limits
χ^2/df	≤ 5 acceptable fit, ≤ 3 perfect fit (Kline, 2005; Sümer, 2000)
RMSEA	≤ 0.10 weak fit, ≤ 0.08 good fit, ≤ 0.05 perfect fit (Sümer, 2000; Tabachnick & Fidell, 2001)
GFI	≥ 0.90 good fit (Sümer, 2000)
CFI	≥ 0.90 acceptable fit, ≥ 0.95 good fit (Hu & Bentler, 1999; Sümer, 2000)
IFI	≥ 0.90 acceptable fit, ≥ 0.95 good fit (Hu & Bentler, 1999)
TLI (NNFI)	≥ 0.90 acceptable fit, ≥ 0.95 good fit (Hu & Bentler; Tabachnick & Fidell, 2001)

(As cited in, 26)

consistency reliability coefficients of the BSCS were calculated as 0,83 for the scale, 0,81 for the self-discipline subscale, and 0,87 for the impulsivity subscale (49).

Positive and Negative Affect Schedule (PANAS): PANAS, developed by Watson, Clark and Tellegen (50) and adapted to Turkish by Gençöz (51), is a 5-point Likert type scale consisting of 20 items and two dimensions (positive affect and negative affect). The internal consistency coefficient of the positive affect subscale of the scale was founded as 0,83 and the internal consistency coefficient of the negative affect subscale was founded as 0,86. The scores that can be taken from the subscales range from 10 to 50. The high scores from the positive affection subscale indicate a high positive affect level and the high scores from the negative affect subscale indicate a high negative affect level (51).

Social Connectedness Scale (SCS): SCS, developed by Lee and Robbins (52) and adapted to Turkish by Duru (53), is consisting of eight items and one-dimension. The SCS is assessed with a rating of 6. As a result of EFA, Turkish adaptation of SCS was seen to be formed from one dimension. Criteria validity of SCS was assessed by Social Provision Scale, UCLA Loneliness Scale and Life Satisfaction Scale. As a result of the criterion-related validity, it is seen that SCS is related to these scales in the expected direction and level. The Cronbach's α internal consistency reliability coefficient of the SCS was 0,90 and the test-retest reliability coefficient was 0,90. High scores on the scale indicate high social connectedness (53).

Process

The Turkish version of the SMDS began with the permission to adapt the scale from Regina J. J. M. van den Eijnden, who developed the scale. A group of two faculty members who are well acquainted with English carried out the translation process of the SMDS. The first translation group has translated the items of SMDS translated into Turkish. The second translation group translated the items translated into Turkish by the SMDS into English. The consistency between the two groups of translations has been examined. Taking into consideration that the translation is correct and consistent, a scale test form is prepared. Finally, this form has been reviewed and approved by three faculty members who are experts in Guidance and Psychological Counseling and Assessment and Evaluation. The Turkish adaptation of the SMDS was carried out through the adolescents as it was in its original form. Within this scope, it has been noted that the adolescents involved in the sampling group have been using social media for the past year and must have at least one social media account. For this reason, adolescents were included in the study, indicating that they used social media on average every day for at least one year and at least one social media account. Adolescents who do not carry these conditions are not included in the search.

The construct validity of the SMDS was examined by the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). First, the

suitability of the data for factor analysis was examined by the Kaiser-Meyer-Olkin (KMO) coefficient and the Barlett's Sphericity Test. As a result of the analysis, the data were found to be suitable for factor analysis. Principal Component Analysis is used in EFA. The resulting structure in EFA was tested with CFA. The model of SMDS has been tested using the Maximum Likelihood method with the covariance matrix taking into account sample size, multicollinearity, outliers and multiple normality. The model fit was investigated with χ^2 / df , RMSEA, GFI, CFI, IFI and TLI (NNFI) fit indices. The criterion validity of SMDS was assessed using the Brief Self-Control Scale (BSCS), Positive and Negative Affect Schedule (PANAS) and Social Connectedness Scale (SCS). Reliability of the SMDS was tested by the test - retest method and Cronbach α internal consistency reliability coefficient. The Cronbach α internal consistency reliability coefficient of the SMDS was calculated in EFA, CFA and the criterion validity sample. Item analysis of the scale was performed with t values related to the total correlations of corrected items and differences in item scores of the 27% upper and lower groups. Statistical analyzes were done with SPSS and AMOS program. The commonly accepted fit indices and acceptable limits for the model fit are presented in Table 3.

RESULTS

Construct Validity

Exploratory Factor Analysis

The Exploratory Factor Analysis (EFA) of the SMDS was performed over 150 adolescents. First, the Kaiser-Meyer-Olkin (KMO) coefficient and the Barlett's Sphericity Test were performed to evaluate the suitability of the data for factor analysis. As a result of the analysis, it was seen that KMO sample fit coefficient was 0,84 and Barlett's Sphericity Test was χ^2 value of 506,935 ($p < 0,001$). These findings show that the data to be used for EFA is appropriate. Then, EFA was performed on 9 items without any rotation with the Principal Components Analysis. As a result of the analysis, a structure with 9 factors was obtained. However, in order for the factors to be determined to be meaningful, it is necessary for the eigenvalue to have a value above "1,00". In addition, these factors must also be reflected in the graph of scree plot. The eigenvalue of 8 out of 9 factors in the EFA result is below "1,00". Therefore, factors that are below the "1,00" core value are not considered as sub-dimensions. The eigenvalues of the factors that have a self-worth "1,00" under the scale range from 0,939 to 0,239. In this context, the scale items are gathered under one factor as they are in their original form. This one-factor structure with an eigenvalue value of 4,310 accounts for 47,88 of the total variance. In addition, the line graph given in Figure 1 of the scale is examined and it is seen that it is broken after the first factor. For these reasons, it is accepted that your scale is a one-factor scale. The Turkish form of the scale provided an exact match with the original form in terms of number of factors. The factor load values of the scale's EFA range from 0,58 to 0,77. Scree Plot of the Scale In Figure 1, the EFA results are presented in Table 4.

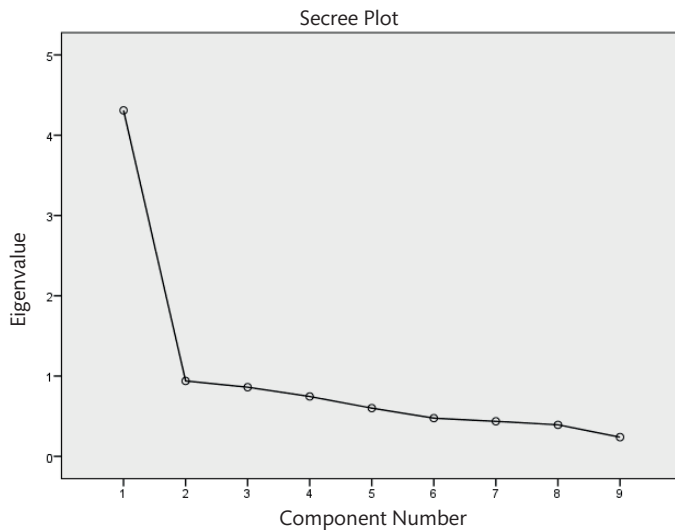


Figure 1. Scree plot graph of SMDS

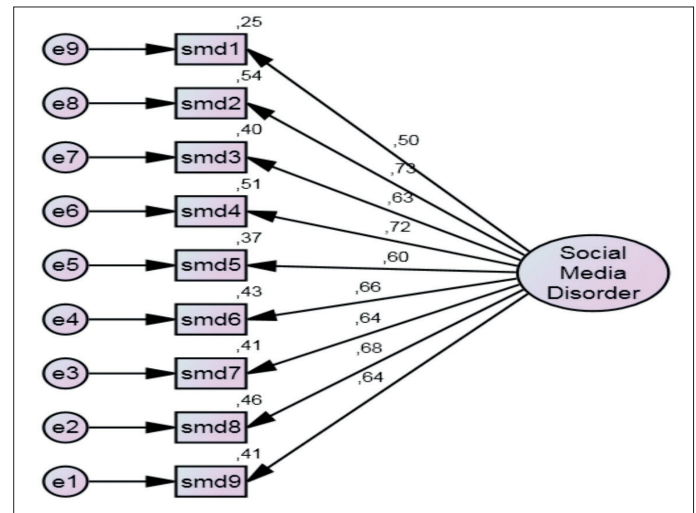


Figure 2. Path diagram of SMDS.

Table 4. Results of Exploratory Factor Analysis

	Item no	Factor load value	Explained variance	Eigenvalue
Social Media Disorder Scale	1	.62	47.88	4.310
	2	.75		
	3	.66		
	4	.58		
	5	.69		
	6	.77		
	7	.77		
	8	.73		
	9	.63		

Confirmatory Factor Analysis

The 9-item and one-dimensional structure of the SMDS was tested with Confirmatory Factor Analysis (CFA). CFA was performed on 150 adolescents. As a result of the analysis, 9 items and one dimensional model were found to have good fit values [$\chi^2=39,237$, $df=27$, $\chi^2/df=1,453$, $RMSEA=0,055$, $GFI=0,95$, $AGFI=0,91$, $CFI=0,97$, $IFI=0,97$ and TLI (NNFI)=96]. Factor load values of SMDS's vary between 0,50 and 0,73. The path diagram for the SMDS is presented in Figure 2.

The 9-item one-dimensional structure of the scale was tested in the sample of the criterion validity. The results from the CFA show that the model has good fit in this sample as well [$\chi^2=50,725$, $df=26$, $\chi^2/df=1,951$, $RMSEA=0,072$, $GFI=0,94$, $AGFI=0,90$, $CFI=0,94$, $IFI=0,94$ and TLI (NNFI)=92]. In this sample of the scale, the factor load values range from 0,44 to 0,75.

Criterion Validity

The criterion validity of SMDS was assessed using the Brief Self-Control Scale (BSCS), Positive and Negative Affect Schedule (PANAS) and Social Connectedness Scale (SCS). In addition, daily social media usage and number of social media accounts were taken into account. Criterion validity of the SMDS was performed on 187 adolescents. The relation of SMDS to these structures was investigated by Pearson Product Moment-Correlation Analysis. As a result of analysis; average daily social media usage ($r = 0,62$, $p < 0,01$), number of social media accounts ($r = 0,38$, $p < 0,01$), impulsivity ($r = 0,42$, $p < 0,01$), negative affect ($r = 0,36$, $p < 0,01$), self-discipline ($r = -0,29$, $p < 0,01$), positive affect ($r = -0,23$, $p < 0,01$) and

Table 5. Findings of the criterion validity

	Social media disorder
Daily average duration of social media usage	0.62**
Number of social media accounts	0.38**
impulsivity	0.42**
Self-discipline	-0.29**
Negative affect	0.36**
Positive affect	-0.23**
Social connectedness	-0.17*

**p<0,01, *p<0,05

social connectedness ($r = -0,17$, $p < 0,05$) were found to be associated with SMDS. Findings related to the criterion validity are presented in Table 5..

Reability

The reliability of SMDS was examined by internal consistency (Cronbach α) and test - retest methods. The Cronbach α internal consistency reliability coefficient of the SMDS was calculated in the EFA, CFA and criterion validity sample. Cronbach α internal consistency reliability coefficient of SMDS was calculated as 0,86 in EFA and CFA samples and 0,83 in criterion validity sample. Whether or not SMDS gives consistent results at different times has been examined by test - retest method. Test - retest analysis was performed on 66 adolescents. Two applications were carried out for three weeks. The correlation coefficient between the two applications was ,805.

Item Analysis

The discrimination power of the items was examined by the item analysis. Item analysis was performed in the sample of EFA, CFA and criterion validity. In this context, the t values related to the differences in the item scores of the 27% upper and lower groups determined according to the total correlations of corrected items and the total scores of the items were examined. As a result of analysis; it was seen that the coefficients of corrected total items of scale were changed between 0,48 and 0,68 in the EFA sample, 0,45 and 0,68 in the CFA sample and 0,39 and 0,68 in the criterion validity sample. The t-values of the differences between the item scores of the 27% upper and lower groups according to the total scores were ranged from -11,142 ($p < 0,001$) to -5,168 ($p < 0,001$) in the

Table 6. Findings related to item analysis

Factor	EFA Sample			CFA Sample			Criterion Validity Sample		
	Item no	rjx	t	Item no	rjx	t	Item no	rjx	t
Social Media Disorder Scale	1	0.53	-6.986***	1	0.45	-9.731***	1	0.39	-9.549***
	2	0.66	-11.142***	2	0.68	-8.758***	2	0.47	-10.681***
	3	0.56	-8.151***	3	0.58	-8.213***	3	0.68	-14.452***
	4	0.48	-7.171***	4	0.66	-8.794***	4	0.53	-10.580***
	5	0.59	-7.680***	5	0.54	-8.472***	5	0.46	-7.510***
	6	0.67	-8.666***	6	0.61	-9.769***	6	0.64	-15.077***
	7	0.68	-7.057***	7	0.59	-7.113***	7	0.54	-9.296***
	8	0.63	-8.588***	8	0.63	-10.746***	8	0.53	-11.692***
	9	0.52	-5.168***	9	0.60	-10.453***	9	0.51	-8.749***

*** p<0.001

EFA sample, -10,746 (p <0,001) to -7,113 <0,001) in the CFA sample and -15,077 (p <0,001) to -7,510 (p <0,001) in the criterion validity sample. Findings related to item analysis are presented in Table 6.

Conclusion, Discussion and Suggestions

The purpose of this study is to examine the validity and reliability of the Turkish version of the Social Media Disorder Scale (SMDS) in adolescents. For this purpose, SMDS has been translated into Turkish first. The construct validity of SMDS was evaluated by EFA and CFA. The criterion validity of SMDS was assessed using the BSCS, PANAS and SCS. The reliability of SMDS was examined by test-retest method and Cronbach α internal consistency reliability coefficient. Item analysis of SMDS was investigated with corrected total item correlations and t values for differences in item scores of the 27% upper and lower groups.

The construct validity of the SMDS was first evaluated with EFA. As a result of EFA, it was seen that the items were collected under the single factor which is above the eigenvalue of 1. This one-dimensional structure accounts for approximately half of the total variance. In one-factor scales, 30% variance is sufficient (54, 55). In this context, it can be said that the one-dimensional structure of SMDS explains the variance at a sufficient level. It is an acceptable value for the factor load value to be 0.30 and above (54, 55). Accordingly, it is seen that the factor load values of SMDS are sufficient for EFA. The one-dimensional structure obtained as an EFA result was tested with CFA in two separate samples. As a result of the CFA, the one-dimensional model was found to good fit in both samples (see Table 3, As cited in 26). The factor loadings of the CFA have acceptable values (54).

The criteria of SMDS were examined using the duration of social media usage, number of social media accounts, self-control, positive and negative affect and social connectedness. As a result of analysis; average daily social media usage, number of social media accounts, impulsivity, negative affect, self-discipline, positive affect and social connectedness were found to be associated with SMDS. Findings related to criteria validity of SMDS are consistent with the literature. Indeed, in the literature, social media addiction has been found to be related to the number of social media accounts (11), self-control (26), positive and negative affect (24, 33, 56) and social connectedness (57). The reliability of the SMDS was tested with the test-retest method and the Cronbach α internal consistency reliability coefficient. For the measurement tools that can be used in the research, a reliability coefficient of 0,70 is considered sufficient (55, 58). In this context, it can be said that the Cronbach α internal consistency reliability coefficient calculated in three different samples and the test-retest reliability coefficient performed in two-three week intervals are sufficient. Item analysis of SMDS was performed in three different samples. Item total correlation coefficients of the SMDS items are in the range of values accepted in the literature in all three samples. In addition, the t-test results used for 27% lower-upper group substance comparisons were significantly determined for all substances. This result shows that the reliability of the substances is high and they are aimed to measure the same behavior (55). These results show that the Turkish version of SMDS is a valid and reliable measurement tool.

Internet addiction offers a holistic perspective, regardless of the addiction of the application or activity. However, social media addiction is more specific and purposeful. The identification of the addiction type is highly

Social Media Disorder Scale

INSTRUCTION: Please indicate how often you have experienced the conditions indicated in the following statements within the past year. Please mark only one option for each statement and do not leave any statement unanswered.

① **Never** ② **Rarely** ③ **Sometimes** ④ **Often** ⑤ **Always**

During the past year, have you ...

...regularly found that you can't think of anything else but the moment that you will be able to use social media again?	①	②	③	④	⑤
...regularly felt dissatisfied because you wanted to spend more time on social media?	①	②	③	④	⑤
...often felt bad when you could not use social media?	①	②	③	④	⑤
...tried to spend less time on social media, but failed?	①	②	③	④	⑤
...regularly neglected other activities (e.g. hobbies, sport) because you wanted to use social media?	①	②	③	④	⑤
...regularly had arguments with others because of your social media use?	①	②	③	④	⑤
...regularly lied to your parents or friends about the amount of time you spend on social media?	①	②	③	④	⑤
...often used social media to escape from negative feelings?	①	②	③	④	⑤
...had serious conflict with your parents, brother(s) or sister(s) because of your social media use?	①	②	③	④	⑤

Not: This scale can be used by indicating the reference source.

critical in terms of prevention and intervention efforts (57). In addition, internet addiction is a more complex structure. Therefore, different structures are taken into account in describing internet addiction (59). In this context, it is thought that SMDS will make a serious contribution to the studies on both internet addiction and social media addiction. Adapting the Turkish version of SMDS on adolescents who have used social media and have at least one social media account has shown that the sample is appropriate. Indeed, the adolescence period is considered as a critical period in terms of technological dependencies (36, 37). In addition, all the validity and reliability analyzes that have to be done in the process of adapting a scale have been carried out (CFA, EFA, detailed criteria validity, reliability analyzes and item analysis). The fact that the items are created using the Internet Gaming Disorder diagnostic criteria on the provides important contributions to the measurement power of SMDS. On the other hand, it should be considered as a limitation that the SMDS is self-rating scale and that the criterion validity is examined with self-rating scales. Therefore, the criterion validity of the SMDS can be performed with scales developed based on parent, teacher and friend report. The implementation of this study on high school students should be considered as a limitation. The validity and reliability of SMDS should be studied in a clinical sample. The validity and reliability of SMDS should be examined not only in the high school students, but also in university students and adolescents in the clinical sample. It is emphasized that the causes of social media use are an important factor in social media addiction (9). For this reason, the relationship of SMDS to social media usage should be examined.

Ethics Committee Approval: The authors report that the study was conducted in accordance with the Helsinki Declaration.

Informed Consent: The informed Consent Form was read by the researcher in the classroom environment.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - MS, ME, FA; Design - MS, ME, FA; Supervision - MS, ME, FA; Resource - MS, ME, FA; Materials - MS, ME, FA; Data Collection and/or Processing - MS, ME, FA; Analysis and/or Interpretation - MS, ME, FA; Literature Search - MS, ME, FA; Writing - MS, ME, FA; Critical Reviews - MS, ME, FA.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

- Kemp S. Digital in 2017: Global Overview. <http://wearesocial.com/blog/2017/01/digital-in-2017-global-overview> Erişim tarihi:16.03.2017.
- Worldometers. <http://www.worldometers.info/tr/> Erişim tarihi:16.03.2017.
- Google Play. Android uygulamaları kategorisinde en popüler ücretsiz uygulamalar. [https://play.google.com/store/apps/top?hl=tr/](https://play.google.com/store/apps/top?hl=tr) Erişim tarihi:16.03.2017.
- Yellowlees PM, Marks S. Problematic Internet use or Internet addiction? *Comput Human Behav* 2007;23:1447–1453. [CrossRef]
- Young KS. Internet addiction: a new clinical phenomenon and its consequences. *Am Behav Sci* 2004;48:402–415. [CrossRef]
- Griffiths MD, Szabo A. Is excessive online usage a function of medium or activity? An empirical pilot study. *J Behav Addict* 2014;3:74–77. [CrossRef]
- Ryan T, Chester A, Reece J, Xenos S. The uses and abuses of Facebook: A review of Facebook addiction. *J Behav Addict* 2014;3:133–148. [CrossRef]
- Griffiths MD. Social networking addiction: Emerging themes and issues. *J Addict Res Ther* 2013;4:e118. [CrossRef]
- Kuss DJ, Griffiths MD. Online social networking and addiction –a review of the psychological literature. *Int J Environ Res Public Health* 2011;8:3528–3552. [CrossRef]
- Pantic I. Online social networking and mental health. *Cyberpsychol Behav Soc Netw* 2014;17:652–657. [CrossRef]
- van den Eijnden RJJM, Lemmens JS, Valkenburg PM. The Social Media Disorder Scale: Validity and psychometric properties. *Comput Human Behav* 2016;61:478–487.
- Echeburúa E, de Corral P. Addiction to new technologies and to online social networking in young people: A new challenge. *Adicciones* 2009;22:91–95.
- Andreassen CS, Torsheim T, Brunborg GS, Pallesen S. Development of a Facebook Addiction Scale. *Psychol Rep* 2012;110:501–517. [CrossRef]
- Griffiths MD, Kuss DJ, Demetrovics Z. Social networking addiction: An overview of preliminary findings. In: Rosenberg, KP, Feder LC, editors. *Behavioral addictions: Criteria, Evidence, and Treatment*. San Diego, CA: Academic Press; 2014. pp.119–141.
- Kuss DJ, Griffiths MD. Excessive online social networking: Can adolescents become addicted to Facebook. *Education and Health* 2011b; 29:68–71.
- Lee ZWY, Cheung CMK. Problematic use of social networking sites: The role of self-esteem. *Int J Bus Inf* 2014;9:143–159.
- Meena PS, Mittal PK, Solanki RK. Problematic use of social networking sites among urban school going teenagers. *Ind Psychiatry J* 2012;21:94–97. [CrossRef]
- Aladwani AM, Almarzouq M. Understanding compulsive social media use: The premise of complementing self-conceptions mismatch with technology. *Comput Human Behav* 2016;60:575–581. [CrossRef]
- De Cock R, Vangeel J, Klein A, Minotte P, Rosas O, Meerkerk GJ. Compulsive use of social networking sites in Belgium: prevalence, profile, and the role of attitude toward work and school. *Cyberpsychol Behav Soc Netw* 2014;17:166–171. [CrossRef]
- Andreassen CS. Online social network site addiction: A comprehensive review. *Curr Addict Rep* 2015;2:175–184. [CrossRef]
- Park WK. Mobile phone addiction. In: Ling R, Pedersen PE, editors. *Mobile Communications: Re-negotiation of the Social Sphere*. London: Springer; 2005. pp.253–272.
- Kwon M, Lee JY, Won WY, Park JW, Min JA, Hahn C, Gu X, Choi JH, Kim DJ. Development and validation of a smartphone addiction scale (SAS). *PloS one* 2013;8:e56936. [CrossRef]
- Pantic I, Damjanovic A, Todorovic J, Topalovic D, Bojovic-Jovic D, Ristic S, Pantic S. Association between online social networking and depression in high school students: behavioral physiology viewpoint. *Psychiatr Danub* 2012;24:90–93.
- Woods HC, Scott H. #Sleepy teens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *J Adolesc* 2016;51:41–49. [CrossRef]
- Karakos D, Tzavellas E, Balta G, Paparrigopoulos T. Social network addiction: a new clinical disorder? *Eur Psychiatry* 2010;25:855. [CrossRef]
- Savcı M. Relationship between impulsivity, social media usage and loneliness. *Educational Process: International Journal* 2016;5:106–115. [CrossRef]
- Wu AM, Cheung VI, Ku L, Hung EP. Psychological risk factors of addiction to social networking sites among Chinese smartphone users. *J Behav Addict* 2013;2:160–166. [CrossRef]
- Andreassen CS, Pallesen S, Griffiths MD. The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addict Behav* 2016. [CrossRef]
- Bonetti L, Campbell MA, Gilmore L. The relationship of loneliness and social anxiety with children's and adolescents' online communication. *Cyberpsychol Behav Soc Netw* 2010;13:279–285.
- Sharabi A, Margalit M. The mediating role of internet connection, virtual friends, and mood in predicting loneliness among students with and without learning disabilities in different educational environments. *J Learn Disabil* 2011;44:215–227. [CrossRef]
- Kuss DJ, Van Rooij AJ, Shorter GW, Griffiths MD, van de Mheen D. Internet addiction in adolescents: Prevalence and risk factors. *Comput Human Behav* 2013;29:1987–1996. [CrossRef]
- Espinoza G, Juvonen J. The pervasiveness, connectedness, and intrusiveness of social network site use among young adolescents. *Cyberpsychol Behav Soc Netw* 2011;14:705–709. [CrossRef]
- Brooks S. Does personal social media usage affect efficiency and well-being? *Comput Human Behav* 2015;46:26–37. [CrossRef]
- Wilson K, Fornasier S, White KM. Psychological predictors of young adults' use of social networking sites. *Cyberpsychol Behav Soc Netw* 2010;13:173–177.
- Kirschner PA, Karpinski AC. Facebook® and academic performance. *Comput Human Behav* 2010;26:1237–1245. [CrossRef]
- Prensky M. Digital natives, digital immigrants part 1. *On the Horizon* 2001;9:1–6. [CrossRef]
- Valkenburg PM, Peter J. Online communication among adolescents: an integrated model of its attraction, opportunities, and risks. *J Adolesc Health* 2011;48:121–127. [CrossRef]
- Yen JY, Ko CH, Yen CF, Chen SH, Chung WL, Chen CC. Psychiatric symptoms in adolescents with Internet addiction: Comparison with substance use. *Psychiatry Clin Neurosci* 2008;62:9–16. [CrossRef]

39. Türkiye İstatistik Kurumu. Hane halkı bilişim teknolojileri kullanım araştırması. <http://www.tuik.gov.tr/PreHaberBultenleri>. Erişim tarihi:16.03.2017.
40. Lam LT, Peng ZW, Mai JC, Jing J. Factors associated with Internet addiction among adolescents. *Cyberpsychol Behav* 2009;12:551–555. [CrossRef]
41. Akin A, Demirci İ, Akin U, Ocakci H, Akdeniz C, Akbas ZŞ. Turkish version of the Facebook Addiction Scale. Paper presented at the 13th European Conference on Personality (ECP 2013); Stockholm, Sweden.
42. Türkyılmaz M. The translation of Facebook Addiction Scale into Turkish and impact of Facebook addiction to reading ability. *The Journal of Academic Social Science Studies* 2015;36:265–280. [CrossRef]
43. Sisman-Eren E. Developing Social Media Use Purposes Scale and examining based on some personal variables. *Hacettepe University Journal of Education* 2014;29:230–243.
44. Akin A, Ozbay A, Baykut İ. The validity and reliability of the Turkish version of The Social Media Use Integration Scale. *The Journal of International Social Research* 2015;8:628–633.
45. Gokler ME, Aydın R, Unal E, Metintas S. Determining validity and reliability of Turkish version of Fear of Missing out Scale. *Anatolian Journal of Psychiatry* 2016;17:53–59. [CrossRef]
46. Akturk AO, Celik İ, Sahin İ, Deniz ME. Turkish adaptation study of Facebook Connection Strategies Scale. *Elementary Education Online* 2014;13:319–333.
47. Demirtaş-Madran HA. Turkish version of Facebook Jealousy Questionnaire: Reliability and validity studies on university students. *Anatolian Journal of Psychiatry* 2016;17:93–99. [CrossRef]
48. Tangney JP, Baumeister RF, Boone AL. High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *J Pers* 2004;72:271–324.
49. Nebioglu M, Konuk N, Akbaba S, Eroglu Y. The investigation of validity and reliability of the Turkish version of the Brief Self-Control Scale. *Klinik Psikofarmakoloji Bülteni* 2012;22:340–351. [CrossRef]
50. Watson D, Clark LA, Tellegen A. Development and validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *J Pers Soc Psychol* 1988;54:1063–1070.
51. Gençöz T. Pozitif ve Negatif Duygu Ölçeği: Geçerlik ve güvenirlik çalışması. *Türk J Psychol* 2000;15:19–26.
52. Lee RM, Robbins SB. Measuring belongingness: The Social Connectedness and Social Assurance Scales. *J Couns Psychol* 1995;42:232–241. [CrossRef]
53. Duru E. An adaptation Study of Social Connectedness Scale in Turkish culture. *Eurasian Journal of Educational Research* 2007;26:85–94.
54. Büyükoztürk Ş. Sosyal Bilimler için Veri Analizi El Kitabı: İstatistik, Araştırma Deseni SPSS Uygulamaları ve Yorum, 23. Baskı. Ankara: Pegem Akademi Yayıncılık; 2017. [CrossRef]
55. Büyükoztürk Ş, Şekercioğlu G, Çokluk Ö. Sosyal Bilimler için Çok Değişkenli İstatistik: SPSS ve LISREL Uygulamaları, 4. Baskı. Ankara: Pegem Akademi Yayıncılık; 2016.
56. Savcı M, Aysan F. The role of attachment styles, peer relations, and affections in predicting internet addiction. *Addicta: The Turkish Journal on Addictions* 2016;3:416–432. [CrossRef]
57. Savcı M, Aysan F. Technological addictions and social connectedness: predictor effect of internet addiction, social media addiction, digital game addiction and smartphone addiction on social connectedness. *Düşünen Adam Derg* 2017;30:202–216. [CrossRef]
58. Durmuş B, Yurtkoru ES, Çinko M. Sosyal Bilimlerde SPSS ile Veri Analizi, 6. Baskı. İstanbul: Beta Yayınları; 2016.
59. Savcı M, Aysan F. Social-emotional model of internet addiction. *Psychiatry Clin Psychopharmacol* 2017;27:349–358. [CrossRef]